Southeastern Cooperative Wildlife Disease Study

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Deisha Norwood
Bayou Cocodrie National Wildlife Refuge
P.O. Box 1772
Ferriday, Louisiana 71334

Dear Ms. Norwood:

Enclosed is our report on the deer herd health checks conducted on Bayou Cocodrie National Wildlife Refuge, Concordia Parish, Louisiana on July 13-15, 2009. The health check involved examination of five deer. The data are arranged into a series of tables (parasitologic, serologic, and pathologic) and are accompanied by interpretive comments.

The interpretive comments focus on the current and future probabilities of problems due to the two major disease problems of southeastern deer: 1) a syndrome of parasitism and malnutrition which generally tends to be density dependent, and 2) hemorrhagic disease which is less clearly linked to deer density. The abomasal parasite count (APC) was 872, a slight increase since our previous herd health evaluation on this site, conducted in 1999. The APC from the previous collection was 528. The current APC values still suggest the population is within the carrying capacity of the habitat. This is also reflected in the good nutritional condition of the deer.

As indicated in Table 4, the level of parasitism and infectious disease in the deer examined were relatively low. We did not detect any significant health problems among the deer examined and we would not anticipate the deer population to suffer from significant density-dependent diseases as long as there is not a significant increase in the population. Additional information on many of the parasites and diseases mentioned in the report can be obtained from our Field Manual of Wildlife Diseases or from our website at www.scwds.org. If you have any questions about the report, please do not hesitate to contact me.

Sincerely,

Kevin Keel, DVM, PhD, DACVP
Assistant Research Scientist

Enclosures

CC: Mr. Kenny Ribbeck
Ms. Cynthia Dohner
Mr. Michael Piccirilli

Table 1. Arthropod, helminth, and protozoan parasites of five white-tailed deer (*Odocoileus virginianus*) collected from Bayou Cocodrie National Wildlife Refuge, Concordia Parish, Louisiana, on July 13-15, 2009.

Animal Number	**1**	**2**	**3**	**4**	**5**
Age (years)	1.0	2.0	2.0	4.0	2.0
Sex	M	M	M	F	F
Weight (pounds)	78	133	150	192	145
Physical Condition	Fair	Good	Good	Excel.	Good
Kidney Fat Index	18.8	16.9	113.0	274.8	104.1
Packed Cell Volume	35	45	48	49	45
Serum Protein	5.7	8.0	7.0	6.8	6.8

Arthropods

Animal Number	**1**	**2**	**3**	**4**	**5**
Lice	Light	-	-	-	-
Louse Flies	Light	-	Light	-	Light
Ticks	Light	Light	Light	Light	Light
Chiggers	-	-	-	-	-
Ear Mites	-	-	-	-	-
Nasal Bots	-	-	-	-	-

Location in Host	**Helminths**	**Number of Parasites Per Deer** 1	2	3	4	5	**Range**	**Prevalence**	**Average**
Subcutaneous									
Brain									
Circulatory									
Lungs	*Protostrongylid larvae*	-	-	-	+	+	-	40%	-
Thoracic Cavity	*Setaria yehi*	7	-	-	-	-	0-7	20%	1.4
Liver	*Fascioloides magna*	0	0	1	2	1	0-2	60%	0.8
Esophagus	*Gongylonema pulchrum*	0	0	5	6	0	0-6	40%	2.2
Rumen	*Gongylonema verrucosum*	-	-	-	+	-	-	20%	-
Abomasum	*Mazamastrongylus odocoilei*	0	0	33	0	37	0-37	40%	14.0
	Mazamastrongylus pursglovei	840	1,676	334	517	703	334-1,676	100%	814.0
APC = (872)	*Ostertagia mossi*	0	84	33	103	0	0-103	60%	44.0
	Protozoans								
Blood	*Theileria cervi*	-	+	+	-	+	-	60%	-
	Trypanosoma cervi	-	-	-	-	-	-	0%	-

Table 2. Results of serologic tests and microbiologic/histologic assays for selected diseases in five white-tailed deer (*Odocoileus virginianus*) from Bayou Cocodrie National Wildlife Refuge, Concordia Parish, Louisiana, on July 13-15, 2009.

Disease	Deer Number				
	1	2	3	4	5
Serologic Tests					
Leptospirosis					
(serotype *bratislava*)	Neg	Neg	Neg	Neg	Neg
(serotype *pomona*)	Neg	Neg	Neg	Neg	Neg
(serotype *hardjo*)	Neg	Neg	Neg	Neg	Neg
(serotype *grippotyphosa*)	Neg	Neg	**Susp**	Neg	Neg
(serotype *icterohemorrhagiae*)	Neg	Neg	Neg	Neg	Neg
(serotype *canicola*)	Neg	Neg	Neg	Neg	Neg
Brucellosis	Neg	Neg	Neg	Neg	Neg
Infectious bovine rhinotracheitis (IBR)	Neg	Neg	Neg	Neg	Neg
Bovine virus diarrhea (BVD)	Neg	Neg	Neg	Neg	Neg
Parainfluenza$_3$ (PI_3)	Neg	Neg	Neg	Neg	Neg
Epizootic hemorrhagic disease (EHD)	**Pos**	Neg	Neg	**Pos**	Neg
Bluetongue (BT)	**Wk+**	Neg	Neg	**Pos**	Neg
Microbiologic/Histologic Assays					
Bovine tuberculosis[1]	Neg	Neg	Neg	Neg	Neg
Chronic wasting disease[2]	Neg	Neg	Neg	Neg	Neg

[1] Gross and microscopic examination of retropharyngeal lymph nodes.
[2] Microscopic examination for lesions (H&E) and immunohistochemistry.

Table 3. Lesions and pathologic conditions in five white-tailed deer (*Odocoileus virginianus*) collected from Bayou Cocodrie National Wildlife Refuge, Concordia Parish, Louisiana, on July 13-15, 2009.

	Deer Number				
Lesion/Condition	**1**	**2**	**3**	**4**	**5**
Peribronchial inflammation/lymphoid hyperplasia	1	-	-	-	1
Pleural fibrosis/hyperplasia	1	-	-	1	1
Granulomatous pneumonia with intralesional nematode larvae	-	-	-	1	1
Sublumbar lymph node abscesses	-	-	2	-	-
Abomasal ulcers	-	-	1	-	-

*Key: - = lesion or condition not present; 1 = minor tissue damage or mild pathologic change; 2 = moderate tissue damage or moderate pathologic change; 3 = extensive tissue damage or marked pathologic change.

INTERPRETIVE COMMENTS: White-tailed deer collected from Bayou Cocodrie National Wildlife Refuge, Concordia Parish, Louisiana, on July 13-15, 2009.

A small number of large lungworms (*Dictyocaulus viviparus*) were found in a single deer. Protostrongylid larvae, probably from muscleworms (*Parelaphostrongylus andersoni*) were identified in the lungs of two deer and were associated with mild lung damage (pleuritis, pneumonitis, pneumonia). Abomasal parasites (*Mazamastrongylus odocoilei*, M. pursglovei, *Ostertagia dikmansi, O. mossi, Trichostrongylus askivali*) at a moderate level (APC = 872) suggesting the herd density is near nutritional carrying capacity. Gullet worms (*Gongylonema pulcrum*) were present at low numbers, but are not considered important to herd health at the levels encountered. The rumen of one deer had small numbers of *G. verrucosum*, and these are also considered to be insignificant at the numbers observed. Three deer had small numbers of large liver flukes (*Fascioloides magna*). The liver flukes were associated with local liver necrosis and inflammation but white-tailed deer do not seem to be affected by this level of infestation. The only ectoparasites identified were ticks, louse flies and lice. All infestations were light and only one deer was carrying lice. The numbers of ectoparasites were significantly lower than those observed in most deer herds at that time of year.

Physical condition ratings, kidney fat indices, and body weights were generally good with one animal rated excellent, three rated good and one considered to be in fair nutritional condition; hematologic values of all deer were near the median values of healthy deer.

In addition to lesions attributable to parasitism (noted above), pathologic studies disclosed abscessed lymph nodes adjacent to the right kidney of one deer. Another deer had very mild abomasul ulcers, possibly related to abomasal parasites. The pleural fibrosis and hyperplasia described in three deer is probably secondary to Serologic tests for antibodies to selected infectious diseases were uniformly negative indicating minimal activity by these diseases within the population.

An overview is as follows: (1) based on APC data the herd is probably nearing or has exceeded nutritional carrying capacity; (2) the levels of important pathogenic parasites, especially large lungworms, are not at sufficient levels to be of immediate concern; (3) selected viral and bacterial diseases have not had high levels of activity on the area; (4) the overall health status of the herd is presently such that disease-related mortality is probably not occurring to a significant extent at the present time.